

THREE NEW SPECIES OF *VERNONIA* FROM SOUTH AMERICA

(VERNONIEAE: ASTERACEAE)

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The following three new species of *Vernonia* have been encountered among materials from South America that have been received for identification. One of the species is from Peru and two are from Brazil.

VERNONIA CAJAMARCENSIS H. Robinson, sp. nov.

Plantae suffruticosae ca. 1 m altae mediocriter ramosae. Caules teretes striati atropurpurei dense griseo-pilosuli et glandulo-punctati. Folia alterna, petiolis 5-12 mm longis; laminae ovatae plerumque 3.5-6.5 cm longae et 1.8-3.0 cm latae base acutae vel vix acuminatae margine integrae apice obtusae vel breviter apiculatae utrinque pilosulae et dense atroglandulo-punctatae subtus densius pilosulae, nervis secundariis utrinque ca. 6 ca. 45° ascendentibus subtus mediocriter prominentibus densius pilosulis. Inflorescentiae elongatae, ramis cymosis axillaribus et terminalibus non foliosis interdum divaricate subdivisis distaliter leniter subcongeste scorpioidibus, pedicellis ca. 1 mm longis. Capitula late campanulata ca. 7 mm alta et 5 mm lata; squamae involucri ca. 27-30 subimbricatae ca. 5-6-seriatae appressae ovatae vel oblongo-lanceolatae 1-4 mm longae et 0.5-1.5 mm latae apice obtusae margine planae plerumque purpureae extus pilosulae superne subtomentosae et dense glandulo-punctatae. Flores ca. 9-10 in capitulo. Corollae purpureae ca. 6 mm longae extus glandulo-punctatae, tubis ca. 2.5 mm longis, faucibus ca. 1.5 mm longis, lobis anguste lanceolatis ca. 2 mm longis; thecae antherarum 1.8 mm longae base calcaratae sed ecaudatae; appendices antherarum ca. 0.5 mm longae et 1.7 mm latae glabrae; basi stylorum disciformes; scapi stylorum in partibus hispidulis superioribus ca. 0.7 mm longi, pilis inferioribus obtusis; rami stylorum ca. 1.5 mm longi subacuti. Achaenia ca. 1.5 mm longa in costis flexuose setulifera inter costam dense glandulo-punctata punctis superficialibus plerumque unicellulatis subglanduliformibus obsita; carpodia turbinata ca. 2.5 mm longa et 3 mm lata; setae pappi albae mediocriter deciduae ca. 50 ca. 4 mm longae distaliter leniter latiores margine et extus scabridulae; squamellae pappi exteriores lineari-lanceolatae 0.4-0.5 mm longae. Grana pollinis in diametro ca. 35-40 um irregulariter areolata et spinulosa (*Lychnophora*-type).

TYPE: PERU: Cajamarca: Prov. Jaén. Quebrada San Agustín. ladera con monte bajo. Alt. 1100-1200 m. Flores purpúreas;

arbusto. Julio 20, 1982. R. Ferreyra & S. Sánchez 19652 (Holotype, US).

Vernonia cajamarcensis keys with some difficulty in the Jones (1980) treatment of tribe in Peru because of uncertainty of the use of the term scorpioid. For this reason the species has been compared with all possible alternatives and been found to differ. The general impression given by the plant suggests relation to *V. scorpioides* (Lam.) Pers. and the pollen type supports that impression. Relationship cannot be very close, however, since the inflorescence is much more elongate consisting mostly of short lateral branches, and the involucrel bracts are blunt. The appressed tips of the involucrel bracts have none of the pubescence seen inside the tips in *V. scorpioides*. The new species also seems to have less flowers in the heads than the 14-24 credited to *V. scorpioides*. The stem surface is distinctly darker with sparser spreading pubescence. The new species might key in the Jones treatment to the poorly known *V. stuebelii* Hieron., but the description and type photograph of the latter suggest that it is a minor variant of *V. patens* H.B.K.

VERNONIA CARVALHOI H. Robinson, sp. nov.

Plantae herbaceae rosulatae ad 3.5 dm altae. Folia subcarnosa oblanceolata plerumque 3-7 cm longa et 0.6-1.2 cm lata base sensim anguste petioliformia margine integra apice rotundata supra et subtus minute immerse glandulo-punctata in costis et margine sparse setulifera, nervis secundariis obscuris. Inflorescentiae scaposae; scapi erecti saepe solitarii striati breviter appresse griseo-puberuli pauca bracteiferi superne pauca ramosi, pedicellis 5-30 mm longis dense hispidulis. Capitula late campanulata 10-13 mm alta et lata; squamae involucri ca. 30-35 laxe subimbricatae ca. 4-seriatae erectae oblongo-lanceolatae vel lineares 3-9 mm longae et 1.0-1.5 mm longae apice breviter vel longe acutae extus pilosulae interiores in marginis late pallidae et subglabrae. Flores ca. 50-60 in capitulo. Corollae purpureae ca. 14 mm longae in tubis faucibus et in lobis inferne et subapice glanduliferae, tubis angustis ca. 7 mm longis, faucibus subvibus ca. 1 mm longis, lobis linearibus ca. 6.5 mm longis et 0.8 mm latis; thecae antherarum ca. 3 mm longae; appendices antherarum ca. 0.4 mm longae et 0.23 mm latae glabrae; basi stylorum annuliformes; scapi stylorum in partibus hispidulis superioribus ca. 1.5 mm longis; rami stylorum ca. 2 mm longi attenuati anguste acuti. Achaenia submatura ca. 1.8 mm longa dense setulifera base et apice pauca glandulifera; carpodia breviter cylindrica ca. 0.1 mm longa et 0.25 mm lata; setae pappi sordido-flavescentes persistentes ca. 37-40 ca. 7 mm longae distaliter vix latiores margine et extus scabridulae; squamellae pappi exteriores lineari-lanceolatae 1.2-1.8 mm longae et ca. 0.2 mm latae. Grana pollinis in diametro ca. 50 um valde lophorata, cristis altis minute multo-spinuliferis, spinis majoribus nullis (Reticulation *V. argyrophylla*-type).

TYPE: BRAZIL: Bahia: Municipio de Palmeiras. Pai Inacio km 242 da rodovia BR 242. Vale entre os blocos que compoem o conjunto. Erva crescendo no campo arenoso. Folhas discolor lucidas. Inflorescencia vistosa, flores arroxeadas. 19 Dez. 1981. *Andre M. de Carvalho, G. P. Lewis & J. L. Hage 1016* (Holotype, CEPEC; Isotype, US).

The new species shows the essentially rosulate and scapose habit that is found in comparatively few members of the genus in Brasil. These species are discussed under the description of *V. santosii* H. Robinson (1980). Of these various not necessarily related species, only the latter has previously been found in Bahia. *Vernonia carvalhoi* differs from the others in general by its narrow oblanceolate leaves with rounded to minutely apiculate tips. Relationship is probably to *V. santosii* which also has entire leaf margins and with which the new species shares some tendency for a limited precocious flowering of the peripheral florets. The related species differs in a number of details including broader thicker leaves, an inflorescence with fewer and more strongly offset branches, more numerous rows of bracts in the involucre, and more narrowly pointed inner bracts. The hairs of the new species are much shorter and less flexuous than those of *V. santosii*.

VERNONIA HERINGERI H. Robinson, sp. nov.

Plantae fruticosae ca. 0.8 m altae mediocriter ramosae. Caules 5-angulati inferne subteretes albo-tomentosi inferne brunnescentes. Folia alterna, petiolis distinctis plerumque 3-10 mm longis; laminae coriaceae oblongae vel oblongo-ovatae, plerumque 4-7 cm longae et 2-4 cm latae base late rotundatae margine planae integrae vel obscure subserrulatae apice obtusae vel breviter acutae supra plerumque glabrae et lucidae in nervis secundariis albidae et tomentellae subtus albo-tomentosae in nervis et nervulis prominulis interdum sordidiores, nervis secundariis pinnatis utrinque ca. 10 ca. 30°-45° patentibus. Inflorescentiae in ramis uni- vel pauci-capitatae; capitula in axillis bracteorum foliosorum breviter pedicellata, pedicellis ca. 5 mm longis latis valde angulatis dense albo-tomentosis. Capitula late campanulata ca. 16-23 mm alta et 15-20 mm lata; squamae involucri ca. 100-150 subimbricatae ca. 6-7-seriatae breviter lanceolatae vel lineari-lanceolatae 3-17 mm longae et 2-4 mm latae appressae apice acutae margine planae extus dense albo-tomentosae in bracteis exterioribus in linearis mediis saepe evanescentes. Flores ca. 60-95 in capitulo. Corollae roseae vel albae 13-16 mm longae inferne glabrae vel subglabrae, tubis ca. 8-9 mm longis superne leniter latioribus, faucibus ca. 4 mm longis, lobis pallidioribus linearibus 5-6 mm longis et 0.8 mm latis superne induratiorebus densius breviter stipitato-glanduliferis apice minute apiculatis et pauca spiculiferis; thecae antherarum ca. 5 mm longae base calcaratae sed vix caud-

atae; appendices antherarum ca. 0.5 mm longae et 0.3 mm latae; basi stylorum non noduliferi; scapi stylorum in partibus hispidulis superioribus ca. 1.5 mm longi; rami stylorum ca. 1.2 mm longi. Achaenia submatura ca. 3 mm longa dense longe sericeo-setulifera; carpodia trubinata ca. 0.3 mm alta et 0.6 mm lata; setae pappi albae persistentes ca. 95 ca. 10 mm longae distaliter distincte latiores non angulatae scabridae extus sublaeves; squamellae lineari-lanceolatae ad 3 mm longae extus sublaeves. Grana pollinis in diametro ca. 60-70 μ m valde lophorata, cristis altis minute multo spinuliferis, spinis majoribus nullis (reticulation *V. argyrophylla*-type).

TYPE: BRASIL: Goias: Mun. de Luziania, Santo Antônio do Descoberto, cerrado com árvores esparsas e solo cascalhoso. Planta encaracolada, ramos recurvados, flores roxas. 27 III 1980. E. P. Heringer 17743 (Holotype, IBGE; Isotypes, NY, US). PARATYPES: BRASIL: Goias: Santo Antônio do Descoberto. Arbusto com 80 cm de altura; folhas coriáceas; flores alvas. 27 III 1980. A. E. Heringer Salles 121 (NY); Dist. Fed.: Bacia do Rio São Bartolomeu. Arbusto ca. 0,7 m de altura; folhas discolores; capítulos com flores caducas; campo rupestre. 22 IV 1981. E. P. Heringer, T. S. Filgueiras, R. C. Mendonca & B. A. S. Pereira 6843 (US).

Vernonia heringeri is similar in appearance to the closely related *V. argyrophylla* DC. and would key to that species (Jones, 1982). Nevertheless, there are a number of significant differences in detail, and separate specific status is certain. Most obviously, the stems and pedicels of the new species are strongly angled, especially the pedicels, and the leaves have distinct petioles. The pedicels of the new species are never elongate as they often are in *V. argyrophylla*. The involucre bracts are apparently in fewer rows with a more oblong rather than triangular shape, and the tips are narrowly obtuse rather than acute. The pubescence on the bracts is a more persistent yellowish tomentum rather than an appressed somewhat evanescent white wool as in *V. argyrophylla*. The pappus bristles in the new species are less obviously broadened or angulate on the margins, and they never show the almost truncate appearance common in *V. argyrophylla*. The distal halves of the corolla lobes in the new species also seem to differ in being stiffer and somewhat indurated rather than shrivelled on drying.

Literature Cited

- Jones, S. B. 1980. Tribe Vernoniae. In Macbride, J. F., Flora of Peru. Fieldiana: Botany n.s. 5 (1): 22-73.
- _____. 1982. A revision of *Vernonia* series *Buddleiifoliae* (Compositae: Vernoniae). Brittonia 34 (1): 102-117.
- Robinson, H. 1980. New species of Vernoniae (Asteraceae). V. Additions to *Vernonia* from Brasil. Phytologia 45: 166-208.



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Nombre: Vernonia cajamarcensis H. Robinson

Descripción: Hierba con flores blancas

Localidad: Quechua, San Andrés

Altitud: 1000 m; arbusto

Habitat: Pasto con monte bajo

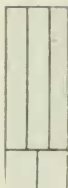
Fecha: Julio 1960; Annual 1960

N. V. Det.

Colector: R. Perreyre & S. W. Snow

Herbario: San Marcos U.S.M.

Vernonia cajamarcensis H. Robinson, Holotype, United States National Herbarium. Photos by Victor E. Krantz, Staff Photographer, National Museum of Natural History.



Vernonia carvalhoi H. Robinson
Isotype

HERBÁRIO CENTRO DE PESQUISAS DO CACAU
Planta de negro, colheita no Buro
-DNA-

Compositae

Município de Palmeras, Par. Itacaré km 242 da rodovia BR 242 Vale entre os blocos que compõem o conjunto.

Erva crescendo no campo arenoso. Folhas descoladas, lucidas; Inflorescência vistosa; Flores arruçadas

André M. de Carvalho, G. P. Lewis & J. L. Raye 1916

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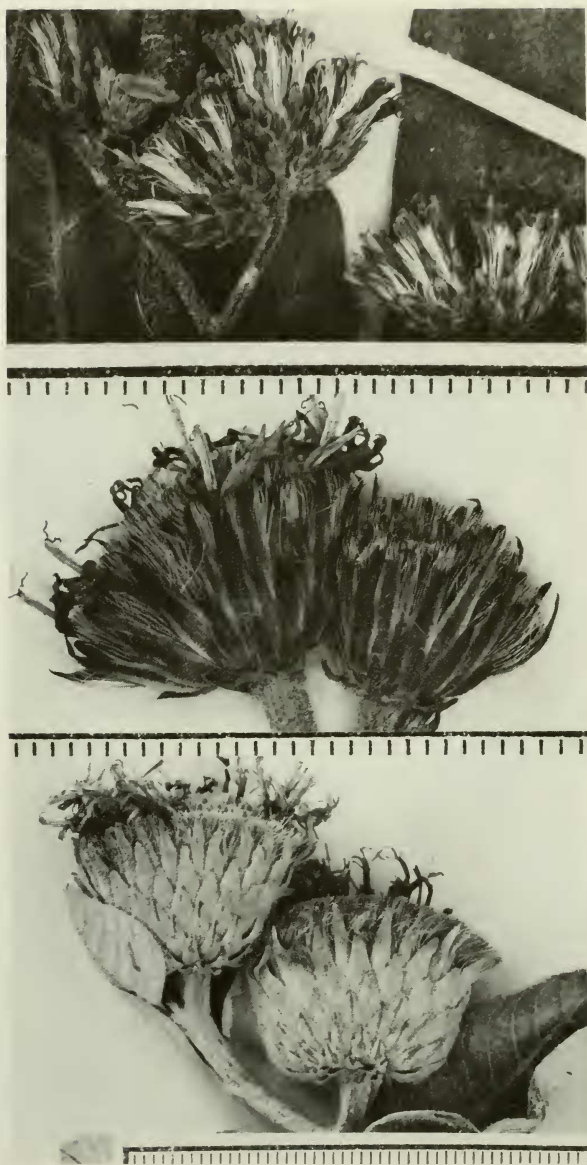
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19. Dez. 1981

Vernonia carvalhoi H. Robinson, Isotype, United States National Herbarium.



Vernonia heringeri H. Robinson, Holotype, Herbario da Reserva Ecológica do IBGE.



Enlargements of heads of *Vernonia* species. Top *V. cajamar-censis*. Middle *V. carvalhoi*. Bottom *V. heringeri*.